REMARKS

By way of the present response, claims 1, 7, 13 and 17 are amended. No new matter is introduced. Claims 1-3, 7-9, 13, 14, 17 and 18 currently are pending.

The present amendment amends independent claims 1, 7, 13 and 17 so as to clarify a manner of compensation of the present invention (see, e.g., Applicants' Specification, page 4, lines 4-5, with respect to independent claims 1 and 7, and page 6, line 21 to page 7, line 11 with respect to independent claims 13 and 17). Accordingly, no new matter is introduced.

The present invention recited in independent claims 1, 7, 13 and 17, as amended, provides a novel manner of compensating deterioration caused by aging and temperature change and which is not taught or suggested by the applied references, taken alone or in combination. For example, independent claims 1, 7, 13 and 17, as amended (emphasis added), recite:

> 1. A display device comprising:
> a display panel which is equipped with pixels including a light-emitting element;
> a temperature detection unit which detects an ambient temperature;
> a storage unit in which a temperature characteristic and an aging characteristic of the light-emitting element are stored;
> an arithmetic operation unit which **calculates a lighting period** of each pixel **corresponding to an environmental temperature** using an output of the temperature detection unit, the temperature characteristic, and a video signal;
> a count unit which **counts a cumulated lighting period** of each pixel using an output of the arithmetic operation unit; and
> a correction unit which **corrects the video signal** to be inputted to each pixel using the aging characteristic and the cumulated lighting period and supplies the corrected video signal to the display panel.
>
> 7. A drive method for a display device having a display panel equipped with pixels including a light-emitting element, a temperature detection unit, a storage unit in which a temperature characteristic and an aging characteristic of the light-emitting element are stored, an arithmetic operation unit, a count unit and a correction unit, comprising the steps of:
> detecting an ambient temperature by the temperature detection unit;
> **calculating a lighting period** of each pixel **corresponding to an environmental temperature** using an output of the temperature detection unit, the temperature characteristic, and a video signal by the arithmetic operation unit;
> **counting a cumulated lighting period** of each pixel using an output of the arithmetic operation unit by the count unit;
> **correcting the video signal** to be inputted to each pixel using the aging characteristic and the cumulated lighting period by the correction unit; and
> displaying an image using the corrected video signal by the display panel.

13. A display device comprising:

a display panel which is equipped with pixels including a light-emitting element;

a temperature detection unit which detects an ambient temperature;

a storage unit in which a temperature characteristic and an aging characteristic of the light-emitting element are stored;

an arithmetic operation unit which calculates an acceleration factor using an output of the temperature detection unit and the temperature characteristic, calculates a lighting period of each pixel using a video signal and **calculates a corrected lighting period of each pixel corresponding to an environmental temperature** using multiplication of the lighting period and the acceleration factor;

a count unit which **counts a cumulated lighting period** of each pixel using an output of the arithmetic operation unit; and

a correction unit which **corrects a video signal** to be inputted to each pixel using the aging characteristic and the cumulated lighting period and supplies the corrected video signal to the display panel.

17. A drive method for a display device having a display panel equipped with pixels including a light-emitting element, a temperature detection unit, a storage unit in which a temperature characteristic and an aging characteristic of the light-emitting element are stored, a count unit and a correction unit, comprising the steps of:

detecting ambient temperature by the temperature detection unit;

calculating an acceleration factor using an output of the temperature detection unit and the temperature characteristic, a lighting period of each pixel using a video signal and **a corrected lighting period of each pixel corresponding to an environmental temperature** using multiplication of the lighting period and the acceleration factor by an arithmetic operation unit;

counting a cumulated lighting period of each pixel using an output of the arithmetic operation unit by the count unit;

correcting a video signal to be inputted to each pixel using the aging characteristic and the cumulated lighting period by the correction unit; and

displaying an image using the corrected video signal by the display panel.

Thus, independent claims 1, 7, 13 and 17, as amended, recite the novel features of an arithmetic operation unit, a count unit, and a correction unit, in the manner claimed. By contrast, although the present Office Action asserts that *Sundahl et al.* (USPA 20040212573) discloses an arithmetic operation unit, a count unit, and a correction unit, Applicants submit that *Sundahl et al.* fails to disclose, teach or suggest an arithmetic operation unit, a count unit, and a correction unit in the manner recited in independent claims 1, 7, 13 and 17, as amended. Specifically, with the invention recited in independent claims 1, 7, 13 and 17, as amended, the arithmetic operation unit, the count unit, and the correction unit, calculate a lighting period, count a cumulated lighting period, and correct a video signal, respectively,

advantageously, allowing a video signal to be corrected using digital signal processing.

In addition, since digital information is not affected by an environmental change, collecting the video signal using such digital signal processing, advantageously, results in improved reliability of the display device. Further, such digital signal processing is less costly as compared to the corresponding high precision analog processing that would be required to obtain the same results. By contrast, *Sundahl et al.* does not disclose, teach or suggest a novel manner of compensating for deterioration, and which allows a video signal to be corrected using a digital signal processing.

The present Office Action further asserts that *Sundahl et al.* discloses that temperature also affects the degradation of luminance of the device and multiple characteristics may be measured and/or combined to provide a more definitive indication of degradation and required correction than available from a single set of measurements, which clearly suggest that temperature compensation can be used to overcome degradation. In addition, the present Office Action further asserts that *Ishizuka* (USP 6,479,940) discloses temperature compensation by having a temperature detection unit, a storage unit, an arithmetic operation unit, and that it would have been obvious to use the feature of temperature compensation, where the measured temperature signal of *Ishizuka* is added to the display device of *Sundahl et al.*, so as to produce a device that is able to compensate for both aging and temperature degradation and to provide a display apparatus even in the case of changing display luminance of a light-emitting panel. However, the arithmetic operation unit (element 33B) of *Ishizuka* merely adjusts the light adjustment signal for compensating temperature dependency of the light emission characteristics and not for compensating deterioration caused by temperature change. Thus, the arithmetic operation unit (element 33B) of *Ishizuka* fails to cure the noted deficiencies in *Sundahl et al.* and fails to teach or suggest arithmetic operation unit of the invention recited in independent claims 1, 7, 13 and 17, as amended.

Similarly, *Miyashita et al.* (JP 361261921A) fails to cure the noted deficiencies in *Sundahl et al.* and *Ishizuka*. Accordingly, independent claims 1, 7, 13 and 17, as amended, are allowable over the applied references, taken alone or in combination. The dependent claims are allowable over the applied references, taken alone or in combination, on their on merits and for at least the reasons as argued above with respect to their independent claims 1, 7, 13 and 17.

In view of the foregoing, it is submitted that the present application is in condition for allowance and a notice to that effect is respectfully requested. However, if the Examiner deems that any issue remains after considering this response, the Examiner is invited to contact the undersigned attorney to expedite the prosecution and engage in a joint effort to work out a mutually satisfactory solution.

Respectfully submitted,

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